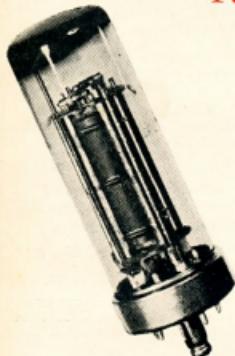


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## EDITORIAL



The spirit of goodwill always associated with Christmas apparently has already reached the shores of Western Australia. Federal Executive appreciates the sentiments expressed in a letter received from the Federal Councillor for VK6 so much, that it feels constrained to throw aside all modesty and publish herein the contents thereof.

"I don't doubt that Federal Executive will agree that its efforts and work generally receive more kicks than compliments, and it is therefore with considerable pleasure that I carry out the instructions of this Division in conveying to your Executive collectively and individually our thanks and commendation for your work in the interests of Amateur Radio.

"It is realised, also, that much of the work is on behalf of remote Divisions and concerning matters which can have little direct interest to you but to which, nevertheless, your Executive devotes considerable energy and time, the latter item being a charge on that elusive and scarce commodity known as spare time, to say nothing of the time which it must be necessary on occasions to extract during business hours.

"We also feel that to your Executive and its predecessors should go the credit for the transition, particu-

larly in the post-war period, of Divisional outlook from a purely State to a wider Commonwealth plane. In this lies much of the strength of our organisation, and we wish you continued success."

Federal Executive extends its heartfelt thanks to VK6 Division for its complimentary and gratifying gesture; but feels that in reality it is the wholehearted support accorded by the Divisions in general, and remote Divisions in particular, that has made it so easy and pleasurable to carry out the wishes of Federal Council.

As the activity of the Divisional Council is the barometer to the interest being taken by the individual members in the activities of the Division, Federal Executive is able to gauge the degree of interest in each Division, and quite naturally reacts favourably to the stimuli. From now until Easter, Federal Executive will be busy collecting, from the Divisions, material for inclusion in the Agenda for the Twentieth Annual Convention. If each and every member includes amongst the list of New Year Resolutions a pledge to put forward at least one constructive suggestion, then we will all have a Happy Christmas, a Bright and Prosperous New Year, and a large Easter Egg.

FEDERAL EXECUTIVE WISHES YOU ALL THE COMPLIMENTS OF  
THE SEASON.

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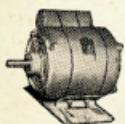


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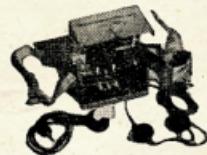
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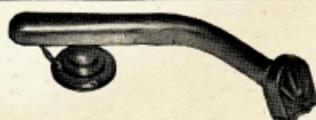
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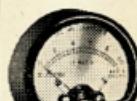
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# A Triple Conversion Receiver

BY M. DU FEU,\* VK6DF

The receiver described in this article was commenced about two years ago, and at that time it was intended to include in it every worthwhile feature from an Amateur's view point. Just what can be classified as a "worthwhile feature" undoubtedly varies from Amateur to Amateur, and in fact the Writer's opinion on this point has changed more than once since commencing the construction of the set. Also in s.s.c. transmission and reception, we have an Amateur technique that was not in use two years ago. Nevertheless, there are certain fundamental requirements for an Amateur receiver that are not debatable. Notable among these are stability and selectivity.

Sensitivity (signal-to-noise ratio) is important also, of course. But it is only of special importance from a design point of view from about 28 Mc. upwards, as at lower frequencies no special requirements are necessary to obtain satisfactory results. In these points this receiver is outstanding, and it also possesses another very desirable feature, accuracy (and ease) of calibration. On all bands covered (7, 14, 21, 27 and 28 Mc.) the frequency may be read directly from the dial with an error of not more than 3 Kc., and usually with much less error. With regard to ease of calibration, it is only necessary to calibrate the receiver for the 7 Mc. band. The calibration for the other bands is then obtained by adding a constant for each band to the 7 Mc. calibration.

The bands mentioned above were the only ones it was desired to cover with this receiver, although, for the sake of completeness, some thought was given to including the 3.5 Mc. band. However, as only five position band change switches were available, and as not much interest was felt in this band anyway, the idea was dropped.

A principle to which the writer felt much attracted was that used in the Collins 75A receiver, of having the first local oscillator crystal controlled, and tuning by varying the second oscillator frequency. In fact, this method has outstanding advantages from the point of stability, and ease of calibration, and increasing use is being made of it, as witness recent articles in "QST" and "AR."

About the time it was decided to adopt this principle, the Command type transmitters became available and it was obvious that one of these would be ideal for the receiver's second local oscillator and tuning control system. Mechanically they far surpass anything available to the average Amateur for this purpose, and the stability of the oscillator leaves nothing to be desired.

One of the units covering the range 5.3 to 7 Mc. was obtained, and by removing plates from the oscillator tuning condenser, and altering the band setting condenser, it was made to tune from

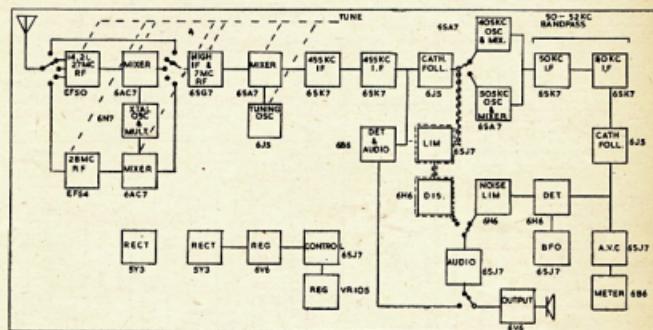
6.536 to 8.655 Mc. over 47 revolutions of the tuning knob, and without too much trouble it was possible to make it fairly linear, that is its average of 45 Kc. per revolution is very nearly the actual figure for each revolution.

The 1625s and their tank coil and padder condenser and the antenna loading coil and antenna relay were removed and a 6SA7 mixer and two stages of 455 Kc. i.f. amplification using 6SK7s were mounted on a small sub-chassis which was installed between the 1625 sockets and the front of the unit (where the tank coil and antenna loading coil had been). The grid coil for the mixer was mounted underneath the unit, and was tuned by the condenser previously used to tune the 1625s tank coil, the

these carry aluminium plates on which are mounted some of the other components. The outside edges of these plates are attached to similar rods on the sides of the receiver cabinet.

The frequency coverage is, of course, fixed at 2.119 Mc. on each band, and the tuning rate is therefore the same on each band, averaging, as previously mentioned, 45 Kc. for each revolution of the tuning knob. The knob carries a plate 4 $\frac{1}{2}$ " in diameter, the outside edge of which is divided into 50 parts, each division representing 1 Kc. (nearly).

A drum is mounted in place of the dial on the Command unit, which is directly behind the front panel. This drum is used to drive a cord carrying a cursor, and the cursor moves forward a



The block diagram (Fig. 1) tells most of the story. The receiver is built up as seven separate sub-assemblies, and is contained complete (except for loud-speaker) in a cabinet measuring 20" long x 12" high x 13" deep. Two other 28 Mc. front ends were tried, using (a)

a 6J6, and (b) a 6AK5 in the r.f. stage. There was no noticeable difference in results however. A wiser choice than the EF50 would probably have been a 6SK7, or perhaps 6SG7, as the greater freedom from cross modulation effects would be of more value than the higher gain of the EF50.

tuning range being 6.991 to 9.110 Mc., that is 455 Kc. higher than the osc. frequency.

Circular holes about 1 $\frac{1}{2}$ " diameter were cut in the right hand side (looking from the front) of the unit directly in line with the centres of the tuning condensers, and specially turned brass couplings were attached to the two tuning condensers so that a 1 $\frac{1}{2}$ " shaft projected through each of the two holes. Flexible couplings were used to connect these couplings to two sets of ganged condensers; one set tuning the 28 Mc. r.f. and mixer stages, and the other tuning the 14, 21 and 27 Mc. r.f. and mixer stages, and the 7 Mc. r.f. and mixer stages. A considerable time was spent to get acceptable tracking.

Brass rods  $\frac{1}{2}$ " square are attached to the sides of the Command unit and

1 division ( $\frac{1}{4}$ ") for each revolution of the tuning knob and dial. Cardboard scales  $\frac{1}{2}$ " wide were made for each band, and fastened to the faces of a hexagon brass rod (bored out to reduce the weight) which is arranged to revolve so as to bring the correct scale for the band in use behind the cursor.

The different bands are covered as follows:

7 Mc.—The signal is fed from the antenna to the 7 Mc. i.f. stage, and the band covered is from 6.991 to 9.110 Mc.

14 Mc.—The signal passes through one stage of r.f. amplification, and is mixed with a signal of 6.2 Mc. from the local crystal oscillator. (The 6.2 Mc. crystal was obtained from the Command Unit.) The coverage is from 13.191 to 15.310

\* c/o. G.P.O. Box 5600, Perth, W.A.

Mc. (6.991 + 6.200 to 9.110 + 6.200).

21 Mc.—The second harmonic of the crystal frequency is used, i.e. 12,400 Mc., which gives a tuning range of 19.391 to 21.510 Mc.

27 Mc.—The third harmonic is used, i.e. 18,600 Mc., which gives a tuning range of 25.591 to 27.710 Mc.

28 Mc.—A crystal frequency of 5.212 Mc. is multiplied four times to give a frequency of 20.848 which provides a tuning range of 27.839 to 29.958 Mc.

On the 14, 21 and 27 Mc. ranges, there is second channel interference from the 6.2 Mc. crystal, which appears at 13.310, 19.510, and 25.710 Mc. All of these frequencies are far removed from Amateur Bands, and are therefore of no consequence. On the 28 Mc. range the fourth harmonic of the v.f.o. appears at about 28.4 Mc., and this frequency is inside the band and is a nuisance. However extensive by-passing and shielding reduce its intensity to a fairly

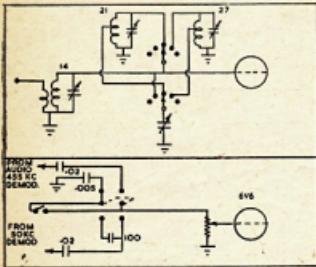


Fig. 2a (above) and 2b (below)

The arrangement of the switched coils (Fig. 2a) for the 14, 21 and 27 Mc. bands is unconventional. The antenna is coupled in only through the 14 Mc. coil, which remains in circuit all the time. Other coils are switched across it as shown, to reduce the inductance.

When the 455 Kc. demodulator is connected to the output stage, the single throw toggle switch (Fig. 2b) is used to connect a condenser from grid of the 6V6 to ground, thus removing some of the highs. When the 50 Kc. demodulator is connected to the output stage, the same switch is used to place a 0.0001 uF. condenser in series with the 0.02 uF. coupling condenser, thus greatly attenuating the low frequency response.

This is a definite advantage for c.w. and for copying those phones in which there is no appreciable low frequency attenuation at the transmitter. The high frequencies are cut so much in passing through the 50 Kc. i.f. stages, that many signals are almost unintelligible unless this condenser is used. On the other hand, if the lows are sufficiently attenuated at the transmitter, results are better without this condenser in circuit.

low value, and as it is the fourth harmonic of the v.f.o., it tunes four times as fast as does any external signal being received. There are no other spurious responses.

Before deciding on the 455 Kc. i.f. finally adopted, 1600 and 2000 Kc. were tried, as also was having the oscillator frequency 455 Kc. higher than the signal frequency. However, in each of these cases there was much trouble from spurious signals. Considerable trouble was experienced also on the 28 Mc. range with unwanted signals beating with what turned out to be the 5th, 6th, and 7th harmonics of the 5.212 Mc. crystal. This was overcome by making use of two loosely coupled circuits tuned to the 4th harmonic in the harmonic amplifier, as shown in the diagram.

The wavetrap shown is essential only on the 14 Mc. range, and it is completely effective.

The single-sideband section of the receiver is adapted from the unit described by J. L. A. McLaughlin in "QST" of October, 1947, the special inductances required being made by Kingsley Radio. This portion of the receiver has been somewhat disappointing, however, the reason most likely being that the 50 Kc. band-pass amplifier is not correctly aligned. For all that the 50 Kc. i.f. channel would be worth

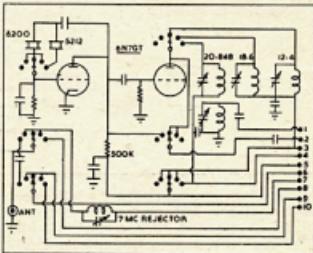


Fig. 3.—Crystal Oscillator Stage.

#### Designations:

- 1—To 28 Mc. mixer grid.
- 2—To 14, 21, and 27 Mc. mixer grid.
- 3—B+ to 14, 21, and 27 Mc. r.f. and mixer.
- 4—B+ to 28 Mc. r.f. and mixer.
- 5—B+ from supply.
- 6—To input of 7 Mc. stage.
- 7—To input of 14, 21, and 27 Mc. stages.
- 8—To input of 28 Mc. stage.
- 9—To 14, 21, and 27 Mc. mixer plate.
- 10—To 28 Mc. mixer plate.

The crystal oscillator uses one section of a 6N7GT in a Pierce circuit (Fig. 3). The other section is used as a multiplier. The oscillator operates with very low plate voltage. The switches shown above are ganged with the coil switches in the r.f. and mixer stages for the 14, 21 and 27 Mc. bands.

while even without the selectable sideband feature, as the increase in selectivity it gives is very considerable.

In fact the selectivity is such that some phone signals are almost unintelligible unless a means is provided to attenuate the lower audio frequencies, and thus provide a better balanced audio signal. At a later date it is hoped to replace this part of the receiver by the single-sideband unit described in "Ham News" of Nov.-Dec., 1948, and this is one reason for the inclusion of the regulated power supply.

The portion of the receiver indicated by dotted lines has yet to be added. Otherwise the receiver is complete, and has been working for several months with very good results.

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## A Simple A.M.C. Circuit That Really Works

BY B. E. CABENA,\* VK3KF

This system has been in use at the writer's QTH for the last twelve months and during this time a number of requests have been received for circuit data. It was therefore thought desirable to send in an article to this magazine for publication.

For the benefit of readers who may not be very conversant with automatic modulation control, a short explanation of its principles will not be out of place. It is analogous with the a.c. system used in receivers in that some of the incoming signal is rectified, filtered and the resultant d.c. applied to the grids of the tubes in the stages whose gain is to be controlled.

The method of achieving this however, is somewhat different in that with audio amplifiers, in order to obtain effective control, it is necessary to tap off portion of the audio signal from the plate of the stage preceding the one to be controlled and feed it to a separate amplifier stage, or stages, the output being rectified and then passed through a filter to eliminate the audio component. The resultant voltage is thus pure d.c. and it is equal in value to the average value of the audio signal.

This voltage, when applied to the grids of the tubes to be controlled increases or decreases the bias in proportion to the average variations of the input signal to the amplifier. This means that the output of the amplifier remains substantially constant with relatively large variations in input signal. It will also be found that signals above a certain amplitude (depending on the amount of control used) will not be amplified. This naturally applies only to the controlled stages. This gives the effect of clipping, but without noticeable distortion.

From the above it will be seen that a.m.c. enables the modulator gain control to be set at a much higher level than would be the case if a.m.c. were not used. This of course means that the carrier can be more deeply modulated, the limiting action of a.m.c. preventing side-band splatter. Experiments with the circuit shown indicate that the system responds to audio peaks of quite short duration.

The first attempts at a.m.c. utilised a 6U7G as controlled tube with control voltage applied to both the signal and suppressor grids, but results were very unsatisfactory. After consulting the ARRL Handbook it was decided to build up the circuit shown using the 6L7 tube in the controlled stage.

Results were much better, in that the a.m.c. was more effective, but not yet

good enough and also the stage gain was so low that the modulator, using 807s in AB<sub>2</sub>, had not enough output to show any signs of modulation on a 38 watt carrier when listening on the monitor. Some modifications were therefore made and the circuit shown finally arrived at.

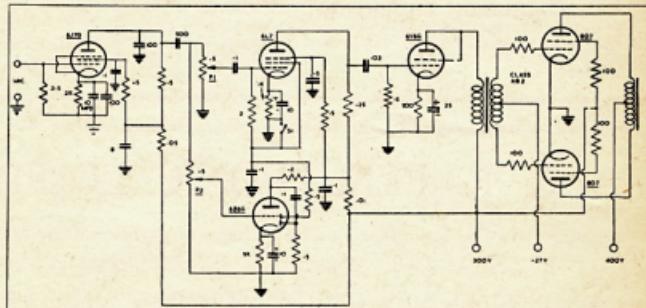
The modulator now has enough output to fully modulate a transmitter of 76 watts input, the gain control being at maximum and the a.m.c. control about  $15^\circ$  from zero. When the a.m.c. is then switched out, the carrier is over-modulated.

It might here be mentioned that there seems to be no reason why the pentagrid or heptode converter tube should not be used instead of the 6L7, in fact, tests made by the writer on the control effects of grids number one and four on type 6A8 tube seem to support this view. The oscillator plate would, of course, be earthed.

be used, if at all, but it is a good idea to be able to switch out the a.m.c. if only for comparative tests.

First set P2 to zero, then adjust P1 for 100% modulation and advance P2 until speech clipping is audible. It will then be necessary to back off on the latter control to the point where clipping just commences, i.e. just noticeable on peaks. Now you will have to increase the gain a bit to get back to 100% modulation; once again back off P2 slightly to avoid severe clipping. The above adjustments were carried out without the aid of a c.r.o., a check being obtained from a local Ham.

During the time that the writer has had this system in use, not one report of distortion has been received, but when asked for a report on quality, the answer has always been "very nice quality indeed OM." There is no reason why you should not have the same success.



The main point as regards the construction of the unit is to make the layout such that the leads around the a.m.c. circuit are kept as short as possible, otherwise instability may occur. The only lead that was found to be rather critical was from the plate of the first stage, but no trouble will be experienced if the coupling condenser C is connected straight to the plate pin on the socket. The value of C was selected to give the best results when using crystal mikes, type JT30; but with dynamic and carbon mikes it may be desirable to increase the capacity to about 0.02  $\mu$ F.

Adjustments of the a.m.c. P2 is quite simple. It should be mounted on the panel with the gain control P1, so that it is easily accessible. This also applies to the a.m.c. on/off switch, S1. It will be found that the latter will very seldom

**A.O.C.P. CLASS**

The Victorian Division A.O.C.P. Class will commence on Thursday, 12th January, 1950. Lectures are held on Monday and Thursday evenings from 8 to 10 p.m. Persons desirous of being enrolled should communicate with Secretary W.I.A., Victorian Division, 191 Queen St., Melbourne (Phone FJ 6997 from 9 a.m. to 6 p.m.), or the Class Manager on either of the above evenings.

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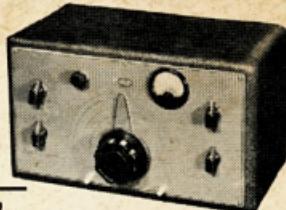
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62 Stanhope St., Malvern, S.E.5 (UY 6274).

# Disposals Genemotors as A.C. Motors

BY L. W. WALLBRIDGE,\* VK5UX

Some Hams who have purchased disposals equipment containing genemotors may not have considered the possibility of using these as a.c. motors.

The genemotors suitable for this conversion have both field and armature of laminated construction and they have

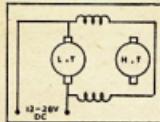


Fig. 1.

one set of field coils (consisting of a few turns of heavy wire) which are common to all windings.

Figure 1 shows how the genemotors are probably wired when purchased.

Figure 2 shows the alteration necessary to obtain a series a.c. motor by placing the field in series with the h.t. winding. (Use the lowest of the h.t. windings if the genemotor has two h.t. outputs.)

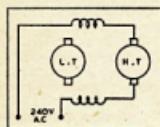


Fig. 2.

The trouble with the series motor as shown, is that it attains dangerously high speeds on no load because the

\* 21 Railway Terrace, Kadina, Sth. Aus.

## VICTORIAN DIVISION, W.I.A.

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Applications for Theory Instructor for the A.O.C.P. Class commencing on 16th January, 1950, are invited from persons competent to teach the elementary principles of electricity and magnetism, radio and audio frequency transmission and reception on Monday evenings from 8 to 10 p.m.

Successful applicants will be suitably remunerated. Applications should be forwarded on or before 9th January, 1950, to the Secretary, W.I.A., 191 Queen St., Melbourne, endorsed "Application for Class Instructor."

field strength is weak and, for the same reason, the torque of the motor is low. Because of this latter characteristic, the machine quickly slows down and stops on any but the lightest loads.

If we increase the current flowing in the fields, the speed of the machine drops slightly, but the torque is increased. A cheap and effective method of doing this is to place a lamp across the motor as shown in Figure 3.

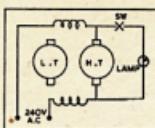


Fig. 3.

A switch will give a choice of two speeds. This idea can be carried further by using a bank of lamps, each with its own switch, to give a wide variation in speed (and torque). If a heavy-duty variable resistor is used in place of the lamps to vary the speed, precaution must be taken to prevent a short-circuit occurring across the machine.

## AN IDEA

Ever short of a couple of points on a terminal strip?

A couple of brass fasteners in suitable holes solders easily and can be bent to suit the needs of the user.

## TRADE REVIEW

Messrs. R. H. Cunningham & Co., Australian Factory Representatives for Stratton & Co. Ltd., manufacturers of "Eddystone" components and equipment advise that a vibrator units is now available for the 640 Communications receiver.

The unit has been designed to permit operation of the "640" Receiver from a 6 volt accumulator, although it may be used with any receiver or other equipment, the h.t. consumption of which is not more than 65 Ma.

The unit comprises a transformer, fuse, non-synchronous vibrator, rectifier (6X5G), on/off switch, pilot light and the necessary filters to prevent r.f. interference. Smoothing is not included since the choke and condensers fitted in the receiver perform this function. A heavy cable is provided for connection to the battery, and a lead terminating in an octal plug, for fitting direct to the socket provided on the "640" Receiver. The unit is totally enclosed in a small metal cabinet, finished a smooth rippled black. The consumption from a 6 volt battery is between 5 and 6 amperes, dependent on load. Catalogue number is 687 and the price is £15/19/5 plus tax.

Stocks of the 669 "S" meter have now arrived, priced at £7/5/- plus tax. Both of these units are available from all "Eddystone" distributors.

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# Restricting Speech Range in Speech Amplifiers

This is a case of where you can get something for nothing, or at least, close to nothing. Before giving the punch line, though, let's examine the situation from the beginning.

Phone stations on the Ham Bands seem to fall into three categories regarding their speech quality. The first are the stations that will have no audio equipment in the shack unless it is capable of a flat response from 20 cycles to 15,000 cycles. Their quality is superb, and your ears would tell you so if it were possible to have a receiver and a reproducing system capable of handling this audio range at a time when propagation conditions allowed undistorted reception. These Amateurs are taking up needless space in the limited Ham spectrum by their activities, but as long as their carrier is inside the band edge by twenty to twenty-five kilocycles (in order to keep those wide sidebands inside the band) then, the P.M.G. will not bother them, at least not yet.

On the other extreme is the second group, small though it be. These Amateurs wish to have a transmitter that is as effective, communication-wise, as possible. Those who are on a.m. phone tailor their speech amplifier equipment until it transmits the narrowest possible audio range, leaving only enough audio range for complete understandability. A more rabid group goes even further, by partially eliminating the carrier and then transmitting only one side band. These Amateurs deserve a lot of applause, but we need not bother to applaud them, because they did this not for applause, but because they want their money's worth out of their equipment.

Which brings us to the third group, which must certainly include the majority of the world's phone men. This group is made up almost entirely of Mr. Average Phone Man and others of his ilk. Mr. Average Phone Man has a speech amplifier and a modulator which he copied faithfully from some handbook or some radio magazine. When he finished the audio end, he connected it to his c.w. rig, got on the air, and asked the first Ham he contacted the age-old question, "How's my modulation?" Aside from the fact that Mr. Average Phone Man should have checked his modulation with a scope, while transmitting into a dummy load, instead of depending on the advice of another Mr. A. P. M., this situation is quite normal and is to be expected.

## WHY WASTE POWER

All right, you say, this is old stuff, so where's the pitch? Here it is. Why continue to waste power by transmitting certain audio frequencies if these audio frequencies are unable to help the other fellow hear you, especially when you can almost get rid of these unwanted

high and low frequencies at practically no cost? To be specific about cost, the change can be made by the use of four 600 volt paper or mica condensers.

Before explaining how and where to put which condensers, let's make certain that another point is clear. This article has nothing to do with speech compressors, speech clippers, or sharp cut-off low-pass filters. The latter will do an excellent job of tailoring the speech range, but these filters may be rather elaborate. Speech compressors and speech clippers, on the other hand, do not affect in any way the band-pass characteristics of an amplifier unit. They may, however, affect the fidelity from a distortion stand-point. This is especially true of speech clippers.

One other point might also be explained here. The changes to be described are suitable for practically any type of speech amplifier. However, a restricted band-width is not assured if these changes are made in an amplifier which is used for n.b.f.m. If the swing is not carefully adjusted, the band-width may still be excessive. In other words, it is worthwhile to make these changes in an n.b.f.m. speech amplifier, but the effect will be nullified if the signal is permitted to swing too far frequency-wise, due to improper adjustment.

## AN ECONOMICAL METHOD

Here, then, is what you may do to restrict the audio range of your speech amplifier in an economical way. First, attenuate the low audio frequencies by changing the value of two of the interstage coupling condensers and second, attenuate the high audio frequencies by adding a condenser from plate to ground on two of the audio stages.

The calculations to determine the proper size of condenser for each point are not difficult. It is first necessary to decide on the audio range you wish to cover. Let us assume that you want an audio characteristic which is down somewhat at 300 cycles on the low end and 3,500 cycles on the high end. To be more exact, this is one which will be down 6 db at 300 and 3,500 cycles, when changes are made to two of the stages. These two frequencies—300 and 3,500 cycles—will be used in the calculations.

The next step is to examine the circuit diagram of your speech amplifier. Most amplifiers consist of a pentode pre-amplifier, driving a triode or pentode amplifier, driving a phase inverter or transformer coupled amplifier which in turn drives the output stage. We are interested only in the first two tubes. We want to put a condenser from the plate of the first tube to ground, and one from the plate of the second tube to ground. Also, we wish to change the values of the condensers which are

between the plate of the first tube and the grid of the second tube, and between the plate of the second tube and the grid of the third tube.

If the third tube is a phase inverter, it is best not to attempt to change the coupling condenser between the second and third tubes. The reason is beyond the scope of this article but it might be necessary to change the grid circuit of the phase inverter in order to get the proper effect from the changed coupling condenser. In this case, the coupling condenser can be changed between the microphone and the input tube. This is completely satisfactory if a dynamic microphone is used. If a crystal microphone is used, a different approach is necessary. Again this is not within the scope of this article, so that you will have to be satisfied with changes on only one tube instead of two.

The final step before starting the calculations is to check the value of the grid resistor to which the new coupling condenser will connect. This will be the grid resistor for the second and third tubes unless, as stated above, it is necessary to put one coupling condenser between microphone and grid, in which case examine the grid resistors for the first and second tubes. These resistors should be no greater than 250,000 ohms. If they are of a greater value, decrease them so they are 250,000 ohms or less. Incidentally, the grid resistor for the second tube is usually the gain control.

## CALCULATION OF COUPLING CONDENSERS

The proper value of coupling condenser will now be one whose capacitive reactance, at 300 cycles, is equal to the grid resistance in the grid circuit of the stage to which it connects. These words mean, simply, that the condenser value in micro-farads is equal to—

$$1,000,000$$

(1884) ( $R_s$ )

where  $R_s$  is the value of the grid resistor in ohms. This assumes that the low frequency point selected was 300 cycles. The figure of 1884 is 300 times 2 times pi. As an example, if the grid resistor is 250,000 ohms, the condenser should be 0.0021, so use a 0.002 uF. condenser. Make this calculation for both stages, and replace your present coupling condenser with the calculated value of condenser if it is not already that value. The low frequency audio tones are now taken care of.

## CALCULATION OF PLATE BY-PASS CONDENSERS

Before starting the calculation of the plate to ground condensers, find out the plate resistance ( $R_p$ ) of the two tubes involved. Most handbooks have this

figure. Next, check the circuit diagram and get the value of the plate load resistor which you are using. This is the resistor which connects directly to the plate at one end and is by-passed to ground (and connects to B+) at the other end. Next, get the value of grid resistor on the tube which follows the tube whose value of R<sub>g</sub> you just looked up. Now, calculate the effective parallel resistance of these three factors, that is, of R<sub>p</sub>, the plate resistance; of R<sub>g</sub>, the plate load resistance; and R<sub>t</sub>, the grid resistance, by the formula:

$$\frac{1}{R_t} = \frac{1}{R_p} + \frac{1}{R_g}$$

For example, assume that a 6J5 tube uses a plate load resistor of 50,000 ohms. The plate resistance of a 6J5 is approximately 7,000 ohms. Assume also that the grid resistance of the next stage is 250,000 ohms. The effective resistance of these three in parallel is 5,990 ohms. Call this R<sub>t</sub> for the 6J5 stage. Incidentally, the R<sub>t</sub> for triodes is low, as shown above. For pentodes, R<sub>t</sub> will be very high.

The proper value of shunt condenser to connect from plate to ground is one whose capacitive reactance, at 3,500 cycles, is equal to R<sub>t</sub>. Stated again, simply, the value in micro-farads is:-

1,000,000

(22,000) (R<sub>t</sub>)

This assumes that the high frequency point selected was 3,500 cycles. The figure of 22,000 is 3,500 times 2 times

pie. As an example, if R<sub>t</sub> is 5,990 ohms, then the plate to ground condenser calculates out to be 0.0076  $\mu$ F, so use a 0.0075  $\mu$ F condenser. Connect it to the plate of the tube and to a convenient ground point. Make this calculation for both stages. This takes care of the higher frequency audio tones.

Let us now examine the change we have brought about in the speech amplifier and also examine what we have gained from this change. To do this, we shall have to assume that the response of the speech amplifier, before the change, was fairly uniform from 150 to 6,000 cycles. This is the sort of response which might be expected in a speech amplifier following general circuit practice. In addition, the response was probably only five or six db down at 100 and 10,000 cycles.

When you used your speech amplifier, before the change, you were modulating your carrier with all the complex audio tones that existed in the microphone output, over the 100 to 10,000 cycle range. Your sideband power, which is all that the other Ham is using to hear your signal, was therefore spread over a wide frequency range. It so happens that it takes a fair amount of modulator power to transmit the lower and higher frequency audio components which are not necessary for intelligibility.

By making the change in your speech amplifier, you now still have the same power in your side-bands, assuming that the percentage of modulation is the same, but you now have a great

deal more power available to transmit the range of frequencies that really count, those between 300 and 3,500 cycles. Effectively, therefore, you have a "louder" signal, because you have increased power at the audio frequencies to which the other Ham listens. In round numbers, the increase in signal strength is about 6 db, which is the same as a four to one increase in carrier power, or the same as putting up an antenna with a 6 db gain over the one you were using.

To get an idea of the response curve which is obtainable, let us look at a speech amplifier which uses, for example, a 6SL7 dual triode for the first two stages, driving a third stage which has a 250,000 ohm grid leak. Assume that the aforementioned changes have been made. Now let us apply a pure tone at 1,000 cycles, the mid-band frequency, and measure the output of the speech amplifier. Next, apply a pure tone of 300 cycles. The output will be down 6 db, or four to one in power. The same thing is true for a 3,500 cycle tone. A pure tone at 150 cycles (and at 7,000 cycles) will be down 14 db, or twenty-five to one in power.

Thus, while the curve obtained is not of the sharp cut-off variety, it will give essentially the same results, and will certainly sound the same to the ear. Further, it was obtained at practically no cost.

The foregoing article was extracted from G.E.'s "Ham News," July-August, 1949.

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**Type A.P.N.2, U.H.F.**, 18 Valves: 7-6AC7, 1-6V6, 1-954, 1-5U4, 2-6SL7, 1-6SN7, 3-956, 1-2C26.

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**Bendix Type MN26-6 Radio Compass Receiver**, 12 Valves, 150-1500 Kc. Will make an ideal receiver for Boat, Car or Home. £12/10/-.

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6SH7 . . . . . 9/6

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## Checking Crystal Frequency with the Type 3 Mark II.

Regulation 136 states that the Amateur should listen on his own frequency to ensure that the channel is clear before calling.

This is particularly difficult to observe in portable work with the Type 3, and sometimes inconvenient, even at home. Here is a simple dodge which provides a neat solution for Type 3 users.

The idea is to switch on the crystal oscillator while in the "receive" position, and tune in the oscillator signal with the b.f.o. switched on. This is done in the following way:

Immediately behind the 6L6 valve is an r.f. choke (L9) and a 0.002  $\mu$ F condenser (C11C), to the junction of which two leads are connected. One goes to the T-S-R switch and the other to the two screens via their appropriate resistors. Separate the 6L6 lead from the EL33 screen lead, and connect it to the T-S-R switch lead, leaving the EL33 plate and screen leads isolated.

Attach a resistor (about 50,000 ohms) to the 250 volt line, and connect a two-way switch so that one side goes to this resistor, one side to the original T-S-R switch lead and the centre to the EL33 lead. You will now find that this two-way switch will cut the crystal oscillator in or out when in the "receive" position without affecting normal operation when in the "off" position.

Crystal activity can be checked (switch position 3) and frequency determined without placing the transmitter on the air.

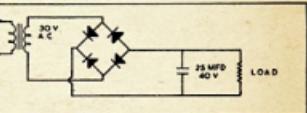
—H. REID, VK3RH

## Cheap Rectifiers for Relay Operating Voltages

A recent advertisement indicated that a well known firm had for sale "MU4 Metal Rectifiers, 12 volt, 50 Ma," at a price of one shilling each.

No information was available locally on the type, so I asked for, and was supplied, with six.

One of the six was marked "BE2-1-1/5 MU4" and some inquiry elicited the information that "BE2-1-1/5" was used in an Army type 122 receiver as a "crash limiter."



On breaking open the tropic proofing, it was found that two lugs were soldered together and, as a result, d.c. would flow in either direction through the unit.

Detaching the wire from the centre tap and wiring four units in a bridge supplied with 30 volts a.c., provided a d.c. supply of 28 volts which has been tested to load at 80 Ma. for over an hour without any trace of warming up.

I have put mine into use at a load of about 50 Ma. for three relays, and it is giving satisfactory operation.

—S. LAIDLER, VK5TL

# THE OLD MAN

The other day I heard a prominent Amateur putting on a turn over the air because he had received a Pro Forma from his local Radio Inspector. What he said about the fellows who are on the Amateur Advisory Committee made interesting listening. This chap felt quite sure that somebody had a grudge against him and a personal one at that. He just could not have been guilty of splattering, etc., etc. I was very amused to hear the station he was working tell him that he WAS splattering at that moment.

Why is it that you fellows take umbrage when that Pro Forma arrives? Is it because your dignity is hurt, or is it because you just can't take it? Surely it's better to receive a note from the Advisory Committee than to receive one from the Department. It is only one of your fellow Hams trying to do his bit to improve the bands and you can't deny they certainly can do with some improvement.

Let us take heed with what is happening in the States at the present moment and if we can continue to discipline our own bands it is far better than the Department doing it, THEY might suggest that you cease operation for a period. The Experimental Advisory Committee only ask you what steps you have taken to overcome the difficulty.

Talking of splatterers, they are still with us. VK2OQ, VK6DD, VK2ABA,

VK5YQ and VK2AED were all taking their share of the band with a couple of others thrown in. If you fellows could see the band width you were occupying, I feel sure that your conscience would prick you very deeply.

VK2AED, it was a pity to list you because your phone was outstanding with perfect quality, spoilt only by the whiskers emanating from your sidebands.

There are still the few who want to be different in designating their call letters, and I heard VK4 Kilowatt Sugar, VK6 Nothing Doing, and a fellow who designated HIS call letters as I'm a Queen, with a great giggle after each announcement. I have purposely omitted his State prefix, after all if you wish to advertise the fact to the general public, I see no reason for giving you publicity for that statement.

It is nice to see that some fellows can admit they were wrong, and I congratulate you, VK6 Mike King.

VK2DG was heard with key clicks extending over a goodly portion of the band. It might pay to investigate this OM. It could have been a parasitic, I couldn't make up my mind on this.

The worst phone of the month was VK6HW with bad quality and a horrible ripple. Why can't you chaps, when told your phone is bad, immediately switch off and do some testing with a dummy aerial and a phone monitor? A phone

monitor will tell you that your quality is good or bad.

The long CQ merchants on c.w. are still about and VK3CG and VK4PO were heard sending endless CQs with an occasional call sign thrown in for luck. Listen to the fellows who really work DX and you won't find them cluttering up the air with useless CQs. They invariably CQ twice or three times and then send their call, which after all is what the DX station is trying to get.

"The P.M.G.'s Handbook for the Guidance of . . ." lays down very definitely that you must sign on and off when your carrier is put on the air. Yet how often do we hear a carrier come on and a voice say "You there Bill?" On comes another carrier with "Yes, Harry, let's look for Jim," and so on ad infinitum. Take heed fellows, the Department view this practice very seriously and you may be heard by somebody who is not on the Advisory Committee, but is being paid to do his spot of listening. Cheers until next month.

## QUESTIONS AND ANSWERS

VK3RH would like to know: What is the correct (practical) manner of joining lines of different impedance, e.g., 70 ohm co-ax to 300 ohm line? Practical details please.

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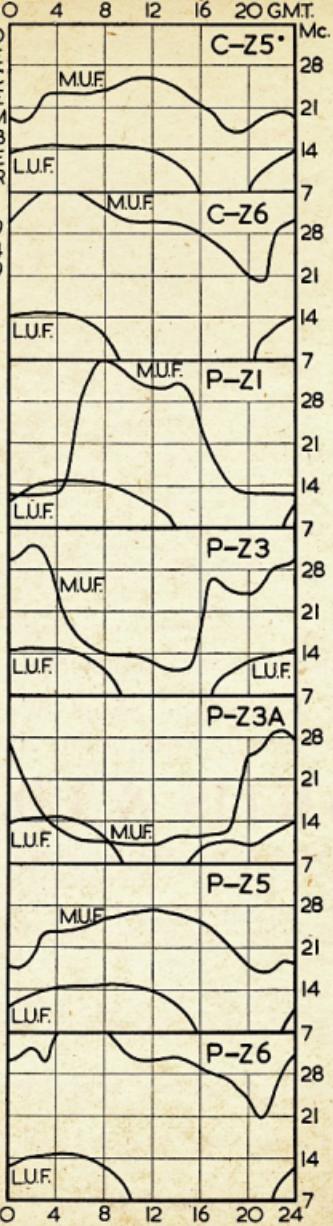
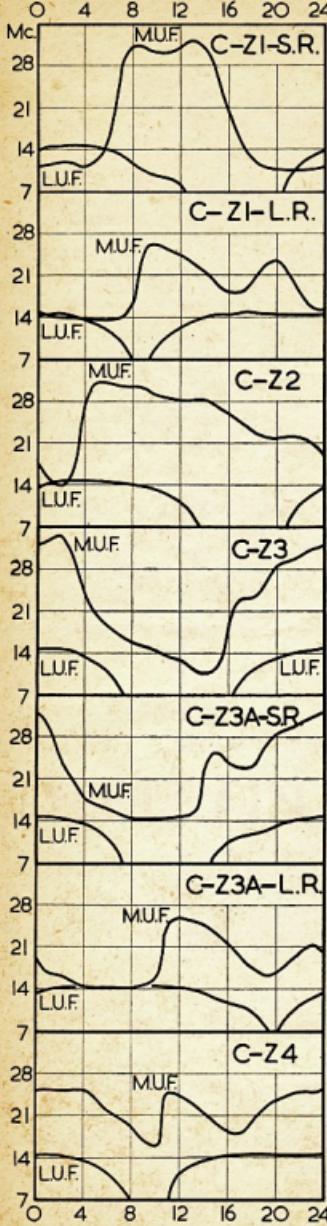
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# IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS



# IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

DECEMBER, 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3	N.-West America	San Francisco
3a	N.-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between Canberra and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South Eastern Australia to the various world zones.

The Perth charts are similar to those based on Canberra. No forecasts are given from Perth to Zones Z2 and Z4 for the current month, as chart P-Z2 would be essentially similar to chart P-Z1, while chart P-Z4 might be unreliable due to auroral activity in high northern latitudes.

## USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, Zones 1 and 3a it is necessary to consult both the short-route (S.R.) chart and the following long-route (L.R.) chart.

## QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-Mediterranean circuit would be useful:

1. Were conditions good on 7 Mc. from 1400 to 2100 hours G.M.T.?
2. Was the 14 Mc. band workable from noon to midnight G.M.T.?
3. Was the 28 Mc. band workable for several hours before Greenwich noon?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

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- TASMANIA: W. & G. GENDERS PTY. LTD., 53 Cameron Street, Launceston, and Liverpool Street, Hobart.
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Further details of any of the above products may be obtained from our distributors or by writing direct.



# FIFTY MEGACYCLES AND ABOVE

Compiled by J. K. RIDGWAY, VK3CR.

## REAL DX

October was certainly a most interesting month for 50 Mc. enthusiasts particularly in N.S.W. and Queensland. As reported in these columns last month, on 9th October JA2AZ heard and was heard by VKs 2AH and 2ARG. THEN AT 2030 HOURS E.A.S.T. ON 20 OCTOBER, VK2ARG WORKED KH6PP, who was RS 57-9 and Bob (2ARG) RS 58-0. This contact was made after many hours of continuous effort. The band conditions at the time were negative, i.e. no beacons, etc., were heard.

JA2AZ was also heard on 9th October by VK4CU between 2055 hours and 2130 hours, but signals were very weak. JA2AZ was also heard on 23rd October at 1845 hours by VK4FN whilst on the 24th October JA2AZ and VK4FN worked KH6PP and KH6MS and both were heard earlier at 38 between 1315 and 1500 hours by VK4HD.

ZL1HE was heard by VK3YW at 1115 hours on the 29th October. W9ZHA and W9ZHL were heard on 1000-1020 hours on the 28th October by VK1ARO.

ZL1HE heard a W on the 29/10/49. ZL1HE and ZL1HE were heard at 0900 hours on 30th October by VK2XH but not on 2nd November. KH6PP and KH6MS were worked for an hour by VK2ARG, followed by VK2XX, and KH6PP and JA2WU and JA2AZ. They were audible from 0905 hours to 1049 hours. KH6MS was having difficulty to hear the W, which was worked by VK2ARG and VK2XX. It's thought KH6MS worked the W on QSO 2 because bad and long fades were taking place towards the end. During this break through, an unidentified W station was heard by VK2ARG. Phone, m.c.w., and c.w. were used.

OJ4AE was heard by VK4HR and a carrier the same day by VK2ZW—0600 hours 14/10/49.

The last QSO worked to Newcastle area for VK5 at 0920 to 1020 hours on 1st November. VK2RU had an excellent QSO with VK5RT, but Sydney contacts were patchy and few.

Lightning can do strange things. At Palm Beach on the 3rd November the lightning struck VK2ARG's ten metre beam which is the lower of three beams of all metal construction except for wooden element spars. The beam was bent so that the reflector span seemed to vertical!! Fortunately all antennas grounded so no gear was damaged. This being part of a freak storm which struck Sydney, first with a dust storm, and then heavy rain and electrical discharges.

It has been noted that freak weather occurs after severe magnetic disturbances and it is a "matter out" in communication systems for several hours about the time KH6 was in. The ten metre band was dead during the break through and as Major 2RU says in November "A.R."—"Spurious" events prevent the return to earth of reflected F2 stuff, so reducing the 10 m.u.t. Ten metres started to live up about 15 mins.

The value of c.w. is apparent, providing your receiver oscillator is stable (p.d.c. note). Heard carriers with a.m. tone and f.m. tone modulated sound f.b.

Incidentally, v.h.f. news is broadcast on 50 Mc., example, 50.4. VK3 V.H.F. gang have set a fine example by clearing the lower frequencies on the 50 Mc. band and don't forget to tune above 51 megacycles. Please note that the recent break throughs are stations using THE LOW END, so help yourself and everybody by keeping the low end clear as possible. Please local contacts could be made available. In some cases far less power is being used than 5 and 10 m.u.t contacts. Some justification can be said for it as break throughs are always on the cards.

## VICTORIA

50 Mc.—At the time of writing the 50 Mc. band has just started to open for Interstate work. On the 5th of November 4HD, 4XN, 4RT, 4RY, 4CU, 4BT and 2030 were heard in large numbers of VK3 stations. Signals were very good with peaks well over 89 and those VKs who made contact will have added substantially to their marathon scores.

During October the band was rather quiet, although it was well watched after hearing of the exploits of VK2RS and VK4S with KH6s and JA2Z. However, this author has been heard in Victoria.

The warmer weather has been attracting stations portable again and we hope this form of work will continue through the summer. On the field day on the 9th November, 3CI and 3DI were portable at Mt. Fatigue, near Foster, and SANW was at Mt. Dandenong; all stations had quite a number of contacts.

During the month 5GF paid a visit to Melbourne and worked quite a number of stations using his mobile rig. 3AKE, of Geelong, has converted a 522 for 50 Mc. and should be on for two way work before this month is out. 4VIF, of Drysdale, is also interested in 50 Mc. and these chaps can be assured of a warm welcome on the band.

On the 30th of October, 3UI and 3CI went portable to Mt. Major, near Dookie. 3UI worked a number of Melbourne stations and heard 2PN of Tumut, over a distance of 160 miles. Conditions did not appear to be as good as expected, possibly due to the windy weather, and Alan hoped to be more successful with the VK3s next time he goes out. The next field day will be on Sunday the 11th of December. There is no restriction on bands used and it is hoped that all those with 50, 144 or 376 Mc. portable gear will be able to go east.

144 Mc.—The population of this band continues to grow with new stations 3DV, 3RV, 3TG, 3VU, and 3RV appearing. Due to lack of time, the writer has not been on this band as much as he would have liked and details of the gear in use at the field days have not been mentioned yet. However 3VM is using a transmitter consisting of A6 oscillator-tripler, 6A05 doubler, 6A6 tripler, and 833 final, modulated by a single 6A03. This rig has been designed for portable work and puts out a good signal. 3RV uses a 522 transmitter and a 322 receiver, modulated by 6A05s in the front end. Aerial is a dipole and 6A05s have already been used to work 3VW and 3AKE.

50 Mc. and 3VU are still very active and the number of Melbourne stations who can work them is steadily increasing. Signals have been varying somewhat, being best after a warm day and worst during the night.

On the field day on 9th October, stations out were 3CI, Mt. Fatigue; SANW, Mt. Dandenong; 3AKE and 3VU, on high ground near Geelong; and 3VU at Red Hill. Was on over the week-end between 3MV and 3CI. Many contacts were had by all those on the band, and in general signals were very good. 3CI worked SANW, 3VU and 3AKE (both at home and portable), but was unable to get through to Melbourne although he was heard by 3ED, 3AKE and 3VU worked 3CI and a local 3MV. Melbourne stations did not work SANW and 3VU. Altogether a good day was had, although the poor weather prevented some of the other stations with portable gear from getting out.

3ED, of North Essendon, has put up a 4 over 4 beam and is getting very much better results than previously, and several other stations have this type of beam.

3XK, of Colac, is on using a 3 over 3 beam and a 522; he has contacted 3AKE and worked 3ZL crossband with 3ZL on 144 and 3XK on 50 Mc. Ross hopes to work into Melbourne before long.

On the 30th of October, 3CI operated portable from Mt. Major, near Dookie, and worked 3APP in Shepparton and 3VY in Wangaratta. He was heard in Melbourne by 3IM, but no QSO took place.

576 Mc.—At last quite a number of interurban paths have been broken down and good cross town QSOs up to 10 miles have been had on the band. 3DA, of Collingwood, has had 3CI at Mitcham, approx. 10 miles and this stands at the home to home DX record at the time of writing. 3DA has also worked 3QO in Box Hill, at 7 miles, and 3NV has worked 3QO in Ivanhoe at 5 miles. All these calls signals had been between 85 and 87. These stations are in line of sight and those who have made the contacts must be congratulated on the efforts they have put into getting gear going well enough to make these QSOs possible.

3XA has worked 89 signals from 3RT at Macquarie over a period of about 12 miles, and this also is a very good effort. On the 9th of October SANW, portable at Mt. Dandenong, in treacherous rain worked 3XA, 3QO, and 3ABA.

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# DIVISIONAL NOTES

Federal President: W. R. Gronow VK3WG; Federal Secretary: W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

## NEW SOUTH WALES

**Secretary**.—Dick Dove (VK2RP), Box 1734, G.P.O., Sydney.  
**Meeting Night**.—Fourth Friday of each month at Stevens House, Corner Gloucester and Essex Sts., Sydney.  
**Divisional Sub-Editor**.—L. D. Cuffe, VK3AM, 14b Watson Street, Neutral Bay, N.S.W.

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**Meeting Night**.—First Wednesday of each month at the Radio School, Melbourne Technical College.  
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## FEDERAL

### DX C.C. LISTING

This month we list the complete members of the DX C.C. as follows:—

#### PHONE

	PHONE		
VK3SD (1)	56	130	
VK3KW (4)	56	124	
VK3GRU (3)	57	123	
VK3ESR (3)	57	122	
VK3DD (1)	57	122	
VK3EEB (10)	58	108	
VK4JP (8)	58	102	
VK3LN (11)	59	102	
VK3IG (5)	59	100	
VK3JE (7)	59	100	
VK4KS (9)	59	100	
New Members			
VK4JP (8)	103		
VK4KS (9)	100		
VK3EEB (10)	108		
VK3LN (11)	102		

#### C.W.

VK3SHZ (6)	40	157	
VK3CN (1)	40	143	
VK3VW (4)	39	134	
VK4EL (9)	39	134	
VK3EER (3)	39	122	
VK3KB (10)	39	122	
VK3EEB (3)	39	121	
VK4HM (8)	40	119	
VK4BP (11)	35	118	
VK3EL (2)	40	115	
VK4DA (1)	38	112	
VK7LZ (17)	38	111	
VK3FH (15)	37	109	
VK3UM (12)	36	108	
VK2GW (16)	38	107	
VK3JF (1)	36	106	
VK3SRU (1)	37	104	
VK3AFA (14)	37	101	
New Members			
VK7LZ (17)	111		
VK6RU (18)	104		

#### OPEN

VK3SHZ (4)	40	178	
VK3DI (2)	40	159	
VK6GRU (1)	37	158	
VK3SE (12)	39	153	
VK3SHG (3)	40	146	
VK4HE (7)	40	146	
VK6KW (13)	39	144	
VK3MC (5)	39	138	

## WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official Broadcasts.

**VK2WI**.—Sundays, 1100 hours EST, 7196 Kc. and 2000 hours EST, 50-4 Mc. No frequency checks available from VK3WI. Intra-State working frequency, 7175 Kc.

**VK3WI**.—Sundays, 1130 hours EST, simultaneously on 3580 and 7196 Kc. and re-broadcast on 50 and 144 Mc. bands. Intra-State working frequency, 7185 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

**VK4WI**.—Sundays, 0900 hours E.S.T. simultaneously on 3750 and 7196 Kc. 50-4 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7065 Kc. channel is used from 1000 to 1030 hours each Sunday as VK4I query service to VK4WI.

**VK5WI**.—Sundays, 1000 hours EAST, on 7196 Kc. Frequency checks are given by VK5DW every evening on the 7 and 14 Mc. bands.

**VK6WI**.—Saturdays 1400 hours, Sundays 0930 hours WEST, on 7196 Kc. No frequency checks available.

**VK7WI**.—Second and Fourth Sundays at 1000 hours E.S.T. on 7196 Kc. No frequency checks are available.

## QUEENSLAND

**Secretary**.—W. L. Stevens, VK4TB, Box 638J, G.P.O., Brisbane.

**Meeting Night**.—Last Friday in each month at the Y.M.C.A. Rooms, Edward Street, Brisbane.  
**Divisional Sub-Editor**.—F. H. Shannon, VK4SN, Marden, via Rosewood.

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**Secretary**.—E. A. Barbier, VK5MD, Box 1234K, G.P.O., Adelaide.

**Meeting Night**.—Second Tuesday of each month at 17 Weymouth St., Adelaide.  
**Divisional Sub-Editor**.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach.

## WESTERN AUSTRALIA

**Secretary**.—W. E. Coxon, VK6AG, 7 Howard St., Perth.

**Meeting Place**.—Padbury House, Cnr. St. George's Ter. and King St., Perth.

**Meeting Night**.—Watch the Monthly Bulletin.  
**Divisional Sub-Editor**.—George W. Ashby, VK6GA, 33 Mars Street, Carlisle, Western Australia.

## TASMANIA

**Secretary**.—R. D. O'May, VK7OM, Box 371B, G.P.O., Hobart.

**Meeting Night**.—First Wednesday of each month at the Photographic Society's Rooms, 163 Liverpool St., Hobart.

**Divisional Sub-Editor**.—Capt. E. J. Cruise, VK7EJ, Anglesea Barracks, Hobart.

**Northern Correspondent**: C. P. Wright, VK7LZ, 3 Knight St., Launceston.

## WIRELESS DISTRESS CALL METHODS

It is desirable that all Amateurs in Australia should be on "All Fail" with Distress Call Methods used by other countries. In time of emergency, the Amateur may further prove his usefulness to the community. A recent R.A.A.F. Bulletin describes the methods to be used for R.A.A.F. and civil aircraft in distress. Briefly they are as follows:—

500 Kc.—This is the main International distress frequency and calls would be made periodically between silence periods of 10 to 15 minutes. It may be used in past each hour. These periods are observed by all ships and other stations with careful listening for distress calls. Most aircraft carry the Ghetto Girl transmitter which operates on 500 Kc. in addition, twelve 4-second dashes at one-second intervals which operate the alarm system of ships and coast stations, can be transmitted. Later models of aircraft will operate alternately on 500 and 8280 Kc.

8280 Kc.—This frequency may be used at night in some parts.

6500 Kc.—This frequency may be used by day in some parts.

5340 Kc.—This is a generally recognised h.f. International channel for distress calls. This channel will be most used if an aircraft has difficulty in getting on land, and signals will go out at regular intervals until rescue is affected.

Various—The usual aircraft frequencies may be used if it is possible in the time available to send out distress calls on the working frequency preceding with the appropriate SOS, Mayday, PAN-PAN.

Procedure—if an aircraft is believed to be down on the ground, listed on 500 and 8280 Kc. These signals will be weak and may best be heard during the silence periods.

The aircraft is believed down on land, listen on 6540 Kc.

Action—Any amateur hearing signals on any of the above frequencies, should follow the procedure outlined in the P.M.G. Handbook for Operators of Wireless Stations, or get in touch with the nearest R.A.A.F. or Aeradio Station without delay.

## AMATEUR CALL SIGN CHANGES

Efforts are being made to again present this feature, so that our new call books will not become





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nals and doing well considering the conditions. 2AKF is unusually good, 2EL active on c.w., believed to be being run by the author. The author is of jazz drumming. Met Cecil Young at the local dance hall, he came over to hear Graeme Bell and Rex Stewart. Gee is selling gear and setting up business. Gee AT3, ABS etc. Ross 2PN set up business on Sunday afternoons. The new arrival 2GU also active on 40 and some metres. Arch heard a W3 on 50, and works 2AKZ mobile. 2WP has a new Command rig and building new final, has "beaut" p.a. tube. 2NM has another Rx SX29. 2WU has a new antenna, the tube line-up and replacing 1.4 solo tubes with 6.5. 2ALN has been away on holidays, his cobber of commercial radio, Harry 2EJ, is off to Colombia, sent his 73s to you. Less than 72 stations are licensed in this zone. Guess we have to get them all in the R.D. Contest next year. Major-General Vasey has now got his h.c. Rx. Old vibrator job free of h.c.l., but new a.c. job makes a good monitor. 2GM and 2ALN are keeping Wyalong on the map. George heard listening to 2DN on 80 where static was lifting the line. 2TA at Young received and acknowledged 50 Mc. transmissions from 2WH, congrats Hugh on the first report. Jim 2AKB says too QRL these days, but has dual purpose antenna on every day except Monday. Jim 2AKB called on 2ALN when passing through. 2ALN the op. is very busy, in the same unit as 2WU, 2DN, 3IV, 3IV, 3PZ, 2GK and 2DQ. Jack is a son of Major-General Vasey who was killed in an A/O accident during the war. 2ABJ has left for a twelve months' cruise to the Far East. Worked my first 80 mx DX—W7MSR, but never received burst carbuncles from the static for my efforts.

## VICTORIA

### STATE CONVENTION

The State Convention of the Victorian Division will be held on Saturday, 21st January, 1949. The date has had to be put forward owing to the administrative requirements of the State's Federal Convention earlier than previously. Hence Agenda items for the State Convention will have to be in the Council's hands by 20th December, 1948.

### GADSDEN AND KINNEAR TROPHIES

Entries from all zones for the Gadson and Kinnear Trophies should be forwarded to the Administrator, Box 100, Victoria Post Office, Melbourne, C.I., before 20th December, 1949.

As yet no entries have been received, although monthly reports should have been forwarded by zone secretaries. Time is running short, so gather up all the activities of your zone and send this information in without delay.

### RULES FOR W.I.A. (VIC. DIV.) HOME-BUILT TEST EQUIPMENT COMPETITION

The Committee has decided that the competition will be limited to "Home-Built Test Equipment" with definite application in the Ham shack. It is hoped by this means that interest will be aroused in a much neglected field. The competition is limited to members of the Victorian Division. Likely entries will be referred to the Secretary of T.A.C. so that space requirements for the storage and exhibition of equipment may be gauged.

The equipment submitted will be adjudged on the following basis:

- (1) Ratio of commercial to home-built components employed.
- (2) Completeness of written description accompanying units. Description should cover constructional details, uses, general specifications of ability, and operating instructions.
- (3) Relationship between physical layout and electric requirements—or vice versa.
- (4) Quality of wiring and quality of soldering.
- (5) Stability, general performance and calibration accuracy.
- (6) Utility of equipment for Amateur purposes.

The decision of the judges shall be final. Judging will take place at the State Convention, where all entries will be displayed.

Further details will be published in next issue of "A.R."

### MOORABBIN AND DISTRICT RADIO CLUB

The first meeting of this Club was held at the Moorabbin Town Hall on Tuesday, 23rd October. There was a particularly good roll up.

The Club is due to amalgamate and it was decided to affiliate with the Institute. Jim Keene, VK3EM, was elected President; Ted Scott, Secretary, and Ed Manifold, VK3EM, Treasurer.

Future meetings will be held at the Moorabbin Town Hall on the third Friday each month. Meetings will include lectures, movie shows, social nights and demonstrations on v.h.f. equipment.

Anyone interested in joining the Club should go along on the third Friday, or they can ring the President, Jim Keene, on XU 2235.

### NORTH WESTERN ZONE'S CONVENTION

This zone held their Convention at Birchip on 8th October, 1949. Present were: 3TL (President), 3OJ (Secretary), 3BM, 3CE, 3HR, 3LU, 3SC, 3GW, 3MF, 3CZ, 3GZ, and Associate J. P. Troy, E. P. Ross, Royas, and R. V. Trebilcot.

The gang arrived at Birchip at 12 p.m., washed, loosened up, and headed for the cafe for lunch.

After lunch, 3TL and 3OA branded each member

so as to keep them in check. They then proceeded to the local power station, of which 3CH is managing Director and engineer, for inspection. After the inspection, the gang adjourned to 3AT. Many questions were answered, they proceeded to the main water supply pumping station under the control of 3CH. Here again more explanations and ear bashing.

Next came the inspection of Birchip shacks of 3CH and 3ACE. When inspecting 3CH's shack, All rights reserved, and demonstrated magic with slight of hand and then fairly presented his operator, the vent. doll. "Gee." The gang was highly amused, it really got 3OA in. The boys then got interested in many of 3CH's old cards of early years. 3CH had a V.A.E. V.E. etc., 1924-25 and crystal sets. 3CH played with spark 1910-13 and crystal sets. All then showed the gang an imported receiver he brought out in 1924, of French manufacture still new, and also a B.B.C. job which the gang were keenly interested in, being the first receivers in Birchip before broadcasting was introduced. Thus completed 3CH's shack.

The gang then moved up to 3ACE's shack. After inspection of ant. and feeders, radio, transmitter, countries, and a good deal of ear bashing on various subjects, serials and 3ACE's rig, they adjourned inside to the sitting room where the President 3TL introduced 3BM, who gave a very fine and interesting lecture on "Modulation, etc.", which was highly appreciated by the Ham present. Time was then getting on and the gang adjourned to the Commercial Hotel for their Annual Dinner, which was served in the best manner and attacked by the gang in that style. By this time, everyone was well begun to fight.

Then followed the Annual Meeting, and after dealing with the minutes, financial statements, and correspondence, etc., the President adjourned the meeting for a while to have our quiz competition, the prize being a Roll Speaker (per. mag.) kindly donated by 3AKR. The winner was 3BM after a big battle. 3BM kindly donated it again to be used in the Dutch auction. 3VNA sprang into action and saluted in Gordon 3GW taking home the prize. This very good effort raised £6/6/- for the Food for Britain Appeal. The President then resumed the meeting, commencing with general business and called for election of office-bearers for the ensuing year.

Those elected were 3BM, President; 3OA, Secretary and Treasurer; 3ACE, Zone Correspondent and Disposal Officer. Before closing the meeting, 3BM spoke about the very able manner and ability of the Past President 3TL and Secretary 3OA in carrying out his last year's operations in the zone and thanked them. After a short discussion it was agreed to hold the next Convention at Swan Lake if possible, or otherwise Swan Hill. The meeting closed and the gang adjourned to 3CH's premises where Mrs. Max Harris and Mrs. Clyde Case prepared a very enjoyable supper. When dinner was being prepared, 3BM screened in the sitting room, showing some very interesting television 16 m.m. pictures of Holland. The poppies of Flanders and War Graves of our dear Australian comrades of World War I taken by Bruce's father and mother while on holidays in Germany and the Continent.

3BM on behalf of the zone thanked Mrs. Harris and Mrs. Case for the enjoyable supper. One o'clock was reached and the gang dispersed to their respective homes. 3CH waited to see 3GZ and 3MF on the 3 a.m. Mildura express. Thus was a very happy end to the Convention.

### NORTH EAST ZONE

On Sunday, 10th October, 3U1 and 3CI left early for Mt. Macedon and were on six and two metres by 10 a.m. You can hardly believe the correspondent heard rumours of the activity, so went along specially to report the doings, arriving about midday. 3U1 was using a new set-up on 50 Mc. consisting of 6AG7 osc., tripler, 6AG7 dblr., 832 p.a.; 6SH7 pre-amp., 68L7 phase converter, p.p. 6P6c mod.; 6K5-J6 converter, 3CX1000 rx., 3CX1000 p.a. plus four 12 volt generators. Two elements "T" match plumber's delight beam and a very flash chrome-plated crystal mike were used. Alan worked 3DQ, 3IM, 3RR, 3VS, 3ABA, 3APP and heard 2PN of Tamut, N.S.W.

3CI was using his usual hot-tuned 522 on 144 Mc. feeding into a cubical grid dipper. It above the ground and worked 3ABA, 3IV, 3YV and 3ABG and was heard by 3IM. 3ABG also used a hot-tuned 522, taking 26 amps. from the 12 volt car battery. Antennas was a haywire cubical quad, fed by line of wrong impedance and mounted on a

twisted stick about 6 ft. high. This "carpenter's nightmare" worked extremely well, only troubles were the lack of insulation and the fact that anyone had to stand under the sky, and all signal reports were bad. However we did work 3CI (ten yards away), 3YV and 3APP on 144 Mc. We learnt a few new words via 144 Mc. when Syd sat down on a Scotch toilet. 3U1 was equally expressive about some horrid things.

3ACW is teaching a YL to operate his rig; Joyce's voice has improved results on 7 Mc. 3ARC is back at Mangalore and has a new car. 3FDJ on 7 Mc. c.w. but battery charging limiting operation. 3YV spending his time in the sun, new car. 3ALG changing antennas again. 3IS is going to get back on six. 3AT, our President, certainly gets a good hook-up attendance. 3JK is in Sydney. 3WZ playing with motor cycles instead of kilocycles. 3APP has shown little interest lately, but with John Cain of Lockley, Bert Brown still listening to 3BMU. Mc., but after keeping a YF and five Juniors, not much cash in left for radio parts.

### SOUTH WESTERN ZONE

Latest news of the month is that 3ABK has a carrier frequency and plans to call "Incredible". I and I hear that 3AKC has come on 40 at times. 3IGV has got a bit of DX in the way of a ZS and one in Tahiti, good work Bob for 40 metres. 3ALG has new modulator going well now. Geelong has a new Ham with the name of 3AJT. Bert has a nice new going. The two boys (3BMU and 3WT) have been on 40 quite a lot with good signals, seeing that conditions are not the best.

3YV has struck oil by his signal these days and now runs about SS-9 and 3AVG still gets his share of DX on 20 metres. 3AJR able to work on 40 with a good signal, but wait a chap, for when Kevin gets his square hole he'll be on half mile on each leg, we just won't work any more DX.

Had a good yarn to the old timer from Ballarat, 3MR. Max had his antenna in his room, and puts in final signal down this way; one thing Max, you want to get to know him, he's a real sport. Heard 3EQ on the other day with a fair signal and clean phone. Also heard a voice that I knew on the high end of 20 and who should it be but 3HF, pulling the spider webs out of the rig.

The only news to hand from 3JA is that he is on 40 metres and DX on phone; from what he has been told, Jack has turned up again. It seems as though the Ballarat boys are silent these days as I have not heard any for quite a long time, the only ones being 3BI and 3MH. One could hear 3BM, 3VA and 3GR on 40 quite a lot, so it seems as though the good old 20 metre band has a few more calls made.

Well chaps this is all for this year, so your scribe wishes all members of the zone the best for Xmas and the New Year and lots of DX, and most thank 3ALG for the notes from the Geelong gang. I must say cheerio, and next year your new scribe will take over and the best to him.

### Geelong Amateur Radio Club

In spite of the adverse weather conditions a fair sized meeting of the members there was a fair attendance of members when club member Peter Perkins gave an illustrated lecture on "Super Modulation." The next meeting took the form of a field night when an enjoyable and exciting night was spent by the boys. A transmitter operating under the callsign 3AT was set up in a spot about two miles from the G.P.O. and operated by 3YV and 3SY. Members set off and with the aid of "loops" and portable receivers to find it. First to locate it was 3AJR and 3ALC who took 32 minutes and 3ABG, 3ABA, 3WZ took 19 minutes. Other members were very close, but could not find the exact spot. Members went back to the club rooms to discuss bearings they had taken.

### FAR NORTH WESTERN ZONE

Activity among members in our corner of the State seems to have increased with the passing of winter. However several of the bands are on the air and the Sunday morning hookups continue.

3FC and 3AFC of Ouyen have been holidaying in Melbourne and Sydney respectively and are back at the toll once more. 3AUG (prob. 3UG) has been heard on 10 metres and his first post-war contact was 3ZL. He is going. Now we get some more calls, 3WZ, 3H, 3L, 3M, 3P, 3R, 3V, 3YV, 3ABG and was heard by 3IM. 3ABG also used a hot-tuned 522, taking 26 amps. from the 12 volt car battery. Antennas was a haywire cubical quad, fed by line of wrong impedance and mounted on a

SMP, who has been off the air for about three months, seems to have been impressed with the whole show to the extent that at the moment he is walking around muttering "volts, watts and percentages" so a modulator must be going through the brain child stages and as a CRT is expected by him any day, switchies look like being thrown soon.

Associate Jim Power has had a lot of trouble with the b.f.o. on his big double conversion receiver; hope you track down the fault soon OM. Jim still has his ticket in January. 3GZ will soon have a 4CX120A and is looking forward to getting a couple of 12 volt tubes. Anyone wanting a good key should get in touch with SFC before Frank toses his out. Rumor has it that a minor operation carried out on his hand will be good for holding wires with the family. Ex-SAGE, now in Darwin with P.M.G., has not been heard yet, but understand he has a 622 receiver and pile of other gear. STI has a v.f.o. ready for calibration. 3GZ is very busy these evenings carrying out modifications to a TA12C recently acquired.

#### EASTERN ZONE

It is with sincere regret that the zone farewells 3CI. Syd Bryant, one of the keenest and most active Hams. His work on 6 and 2 metres is an example to all. We wish him health and prosperity in his new sphere. 3M2 and 4S12. Rex Duxbury has sent his best and good wishes in their new venture, which, fortunately for us, keeps them still within the Eastern Zone.

3B8 and 3DZ paid their promised visit to 3WE, "The Old Man of the Mountains". Bill has just bought a bank, and by the time this goes to press, will have started his printing and printing business there. Good luck Bill—way of helping out with the lumber shortage.

The really big news of the month is the new junior op. to our President, 3PR, Ron Jardine. Congratulations to Ron and the XYL. And here is some news for the old timers. During the week we received 3M2, 3M3 and 4S12. Rex Duxbury's signal is not active at present as he is too busy. However, Ham Radio is not entirely forgotten—there are the makings of a very comfortable shack with quite a lot of gear just waiting for the "master hand". Jim Chaliver, is fast becoming our leading Ham. He is now building a new frequency meter to add to his already 1b. shack. Six and two metres hold no secrets for Jim. Congratulations to the junior op. to our President. Now we have yet to meet a keeper last 3B8 and 3BB, Gordon and Bert, are putting in some good ground work for our forthcoming Convention. Don't forget the date! A.N.A. weekend, 28th of January, 1950.

#### CENTRAL WESTERN ZONE

First of all let me remind you of prizes to be won by zone members during the coming twelve months:

(a) Best improved signal on the 40 and 80 metre bands, plus zone hook-up attendance (1st and 2nd prizes).

(b) Most outstanding result on v.h.f. bands.

These will be worth winning chaps, so hop into it and let the Committee in a difficult task, Secretary posted with your doings to give them a lead.

Stawell is sprouting a new scenic spot in the shape of 3AKF's three element 20 metre beam. Keith is getting along fine with the construction, and the first antenna for 3AEW is now finished off the conversion of his RA10FA receiver to a double if, using 110 Kc. 1.c. if's and it should be very t.b. when completed. 3AGB popped up on our last hook-up, and made quite a surprise addition. Jim Trubridge was another surprise to give them a lead. Another surprise was a personal contact with 3ATR, who walked into the shop one evening. Trub has a nice set-up on the farm. Spends most of his time on 28 Mc. and mending the rest of the time.

Our worth George of 3ON has invested in a commercial modulator to the great improvement of his phone. George's shack is quite a pleasure to enter these days, peck looking gear all over the place. 3IQ is leaving the quiet of Carisbrook and moving to Bellarine. He has got another commercial ticket. Kevin must be trying to beat the gun before they make 'em harder hit.

3XC is still very busy playing round with a commercial v.h.f. outfit, and seems to be having the time of his life. He can't make out why he wants to sedate at Castlemaine. 3XU is busy shifting into a new address, no doubt Gordon was blown out of the old QTH by 3AWN's beam; it's bad show to have a Ham just over the road.

3KX has just moved up to C.J. 4000, and is well on the way to having it finished. SFT is an other of the look and see gang, so the boys will not be able to say too much to either of them about their phone. Incidentally, SFT's XYL now thinks Ham Radio is the goods, after Ray brought home the blankets.

For about the last four months 3YV has been working on n-h.m.s., mainly on 3.5 Mc., and after passing through various one and two tube reactance modulator units has settled down to push-pull audio and balanced modulators as per "Hund's Frequency Modulation". It seems to work out very f.b., and we may consider it for our next transmitter. Are their a.m. receivers selective or not? By the way, is there such a person as a Ham cum discriminator? They seem to be as scarce as hen's teeth.

#### QUEENSLAND

The general meeting for October was poorly attended, there being only fourteen present. The stormy weather that night no doubt made many members stay away. The Secretaries reported 30 members at the end of October. There were 325 City and Suburban members, 100 State members, 60 Country financial members, and all told a total of 491 unlicensed. Remember chapter—one month behind with your fees and no more "A.R." Two months behind and down comes the chopper—no more money.

3MF suggested that when the lecture fails to appear on appointed night, that a general discussion on technical points take place—question/answer session. Much better to have such a session than the fault-finding session that punctuates nearly every general meeting.

It was gratifying to learn that during October eleven more country Hams became members and that the Secretary has another fifteen applications from the country awaiting acceptance.

A recent check on the Central Queensland board reveals that six out of nine zone managers took part, whilst only two out of eleven members of the VK4 Council sent in logs. Rather a poor example for Councillors to set to their fellow W.I.A. members. What about it fellow Councillors? Let's make the 1950 R.D. Contest a "must".

#### ZONE NEWS

**Brisbane.**—Only news of this zone for this month is what the Sub-Editor has gleaned from "reading your mail". Congratulations to 4AW, Arthur has now another in the family. 4ZL is believed to be Howard's name. 105 Mc. and 840 Mc. were apparently to very good purpose. Howard's signal was heard in KH6 but unfortunately did not heat the KHz calling him. 4RC and 4KS piled up huge scores in the October Contest, believe Keith has a very high multiplier.

**Ipswich.**—Howard George of 4GG had a "Swan Song" visit to all the O.T. he knows—why "Swan Song" George? 4WL late of this zone but now on Manus Island, had a very nice portable rig going. Was using a 1000 watt driving a 6K6 at 4000 Mc. The receiver was a 4GK driven by 6S17. The antenna was a Gibson Girl Kite. On the same day, 9th October, 4CK took a No. 11 into the country, but found conditions very poor.

Welcome back to the 7 Mc. band to 4LT. Albert is a real country-type now—time fully occupied managing general store, raising chickens, feeding piggies, and in his spare time "hamming" and singing the blues.

**Gympie (4HZ).**—Jim is taking things easy these days, given up binesman's job, no more trapset acts for Jim. On the 9th October, 4HZ took an F5E into the country, tested with various antennae and found the Windham best. Major changes have been made to the home now, and excellent quality phone is now warding them there. Come to think of it 4XR and the new harmonica. A newcomer to the zone is "farmer Bob," 4RN out Woodford way.

4CM is fed up with the QRN and Cos looks like going on 14 Mc. 4HD has a new portable using a 4P12 modulator and a 4P12 power supply, plus 4F56s driven by 4E4. Believe Alf also has a new 6 metre rig. Beloved old-timer Alf Bauer talking over 4F8's mike the other night, it sounds as though Alf is contemplating a comeback. 4LN going quite gay. Barry is juggling the paint pot now, the vees are in.

**Bundaberg (4BJ).**—Congrats to 4HE who has succeeded 4PG as chief of the local b.c. station. 4XJ is leaving Rockhampton to return to his home town where he will go into partnership with 4HE. 4BJ was out on the field day with a portable 382 and 4F8, and the latter was the best. B. 4E2 series for the receiver, and antenna used was a single wire matched impedance.

**Townsville (4GD).**—New Ham in the zone who are also new members of the W.L.A. are 4WD, 4DH and 4F14. 4F14 is a great help with the fourth wheel, and new countries in OM4 CO2, YF9, PK4 YQ4 and was unlucky to miss OX3 because another VK4 thought he owned the OX3.

**Downs (4CG).**—Conditions have been very patchy and band widths have been great. The last few afternoons now and W. signals seem to gone for a couple of months. 28 Mc. turns on the works every now and then. OKADY has been giving a lot of the boys their first South American QSO on that band. Quite a lot of c.w. on the band too. European come through regularly after 10 p.m.

Been hearing ground waves from 4BT and 4HR. No news of 4RF but rumour has it that Fred will make a comeback shortly. 4XN has had the "flu"—the same applies to 4CU. 4DA has gone 28 Mc. minded, quad beam and all nickel plated fittings to match. Max also interested in mobile work, and has a 4000 Mc. beam. Max's beam is a bit higher as to get through to Daly. By the time these notes reach print, 4UX of Stanthorpe, will be a Brisbane. 4ST has been settled down in the Brisbane Zone. Our sincere sympathies to 4L at the sudden loss of his wife. 4TV often heard on 49 (believe certain parts of commercials to shame—Sub-Ed.). Welcome to Bill Tays 4YW, a new Toowoomba Ham running 25 w.m.s. on the 7 Mc. band.

**Student Member (4ZL).**—My first duty is to reprimand all Student Members who have not been attending the lectures every Thursday night at 6 p.m. in the Y.M.C.A. Rooms. On an average early four members have attended the classes regularly. I hope Local clubs now have great available to demonstrate their points. The standard of the lectures and demonstrations would be greatly improved if the W.I.A. were sure of a greater attendance. So what about it fellows?

On behalf of the Student and W.I.A. members generally we express deep sorrow at the passing of a student member Arthur Addis, who died during the last week of October.

By the time you read these notes, Christmas will be close at hand and the Sub-Editor extends Xmas and New Year Greetings to all members of the Wireless Institute of Australia.

#### SOUTH AUSTRALIA

The monthly general meeting for October took the form of a visit to the Osborne "A" thing and power house, and the general reaction was that there should be more of this kind of thing. A party of approximately 50 or 60 members departed from the clubrooms in a luxurious bus escorted by motor bikes, fruitières vans, and sundry other types of transport. The pilot, natural born cook and bottle washer, Ross Kelly (54W), was in charge and it was expected that a record breaking trip would be made. To say that our hopes were rudely dashed to the ground would be to put it mildly, and as the day went on the power house itself, recently restored from the bombing of the war, even the most optimistic of the members realised that Ross had erred in his calculations, and if we kept going we would be taking a dive off the Outer Harbour wharf. A near riot now broke out, and with Ross you'd think that the far end goes up, downrise, and all the passengers yelling unprintable remarks at Ross, a very enjoyable five minutes was had by all.

Eventually, after one or two false starts, the right road was found, and Ross still had the extra car to get passengers to power house, we arrived at the power house. We then split up into small parties, and with each party accompanied by a very co-operative and helpful guide, an extended tour of the power house was made, lasting about two and a half hours. The tour was not a success, most of the turbines, meters, and associated apparatus was branded Parsons, but nobody allowed this fact to pass them by, much to my embarrassment. The tour of inspection concluded with the usual vote, which was enthusiastically acknowledged by all.

J. W. Bulling (5KX) who is a big butter and egg man at Osborne, and had acted as one of the guides offered me a ride home in his car and therefore I did not return by bus, but my car was not the only one home now. Ross Kelly was most successful except that he had developed a petral lock and arrived back in the city just in time for the members to scamper like a lot of rabbits across King William Street after their last trame. Anyway, a number of the members were in the programme organiser, Ross Kelly, is to be congratulated, even if he did not get the extra fourpence.

5FD has a couple of Selwyns to go with his prop. motor and we may expect to see the "Plumb Delight" spinning madly in the blue sky at Mount Gambier ere long. Ross Kelly has a spot of trouble with his 4E2, and now knows that the last few laminations can cause a heck of a lot of trouble after being forced into place. Rumour has it that he is talking of house building, so perhaps radio will take a back seat for a while.

5KU has finished the transmitter and according to reports it is looking good. John is having a little trouble with his 4E2, and the reason is because it works better without the oscillator. 5JA is usually the first with the latest down at the "Mount" and once again he has stolen the lime light with his a.s.c. transmitter. John is using the 4E2 and 4F8, and has a 4P12 power supply. 10 metres. 5M8 is highly pleased with the reports to date. 5MS is anxiously awaiting the arrival of his new Eddystone receiver. How do you do it Stewart?

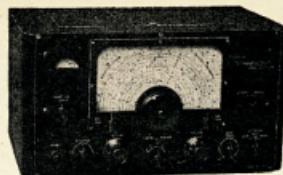
5CH has been very busy getting the bushfire fighting equipment ready for the coming winter months. Claude is also interested in 2 metres and



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## CONTROLS—

Main Tuning.  
Aerial Trimmer.  
Oscillator Trimmer.  
Audio Gain—Mains On/Off.  
R.F. Gain.  
Bandspread/G.C. Switch.  
Noise Limiter.  
Stand-by/Receive Switch.  
C.W./Phone Switch.  
B.F.O. Pitch Control.



## ADDITIONAL FEATURES

- ★ Automatic volume control applied to R.F., 1st I.F., second mixer, and 100 Kc. I.F. Output flat within 10 db with input varying between 3 and 100,000 microvolts.
- ★ Illuminated S meter included. S9 equals 100 microvolts. 6 db per S unit.
- ★ Attractive steel black crinkle enamel cabinet, 22½" x 14" x 12½".

## The "Commander" Double Superhet. Communications Receiver

WRITE FOR DETAILS  
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FOLDER.

Designed and manufactured entirely in England by Radiovision (Leicester) Ltd.

AUSTRALIAN AND NEW ZEALAND  
FACTORY REPRESENTATIVE . . .

**BRIGHT STAR RADIO**

1839 LOWER MALVERN ROAD,  
GLEN IRIS, VIC. Phone: UL 5510.

## VALVE COMPLEMENT—

Type 7H7 R.F. Amplifier.  
" X81 First Mixer.  
" 7H7 1600 Kc. I.F. Amplifier.  
" X81 Second Mixer.  
" 7H7 100 Kc. I.F. Amplifier.  
" 7R7 Detector and A.F. Amp.  
" 6H6 Noise Limiter.  
" L63 B.F.O.  
" KT61 Output Amplifier.  
" U50 Rectifier.  
" 7475 Neon Stabiliser.

## ADDITIONAL PERFORMANCE

- ★ Audio output 3 watts into 2/3 ohm Speaker. Headphone output suitable for high or low resistance phones.
- ★ B.F.O. operation on low 100 Kc. I.F. ensures high stability and freedom from drift.
- ★ Aerial input balanced or unbalanced to earth. Signal/Noise ratio substantially constant with input between 70-400 ohms.

Even the **TRIMAX** Factory  
is Transformed!

... Now at a NEW ADDRESS  
**CHARLES ST., NTH. COBURG** MELB.  
AUST.

## NORTHERN ZONE

Mr. Arnold Wolf gave the long awaited lecture on the equipment used in Launceston's two-way radio equipped taxis at our September meeting. This was indeed a treat. A fleet of taxis by Phillips (Aust.) Ltd. is the latest addition to the fleet. It is in constant touch with each other and direct them from one call to another without the necessity of the cars reporting back to base. The advantages of such a system are too numerous to mention and the description of the equipment used made a very interesting lecture.

Evidence of the present trend in the zone is away from DX and the lower frequencies because at present 7BQ, 7BL, 7TE, and 7IF are either building or have just completed, 144 Mc. crystal controlled transmitters.

The only active stations on the lower frequencies at present are TKE, 7LZ and 7BB, the latter stations operating on telephone only.

The position of the year could only be apportioned to the Contest. Last month I commented on the first week-end of the VK DX Contest. Conditions were as bad elsewhere as they were here for the remaining periods, the least said the better.

The telephony section of the CQ Contest has just concluded. Judging by the interest shown by overseas stations, this is certainly going to become one of the leading DX Contests in the world.

## CORRESPONDENCE

The opinions expressed in these letters are the individual opinions of the writer, and do not necessarily coincide with those of the publishers.

### R.D. CONTEST

Minden, via Rosewood, Queensland.

Editor "A.R." Sir,

The 1949 R.D. Contest has been decided and heartiest congratulations to VK7. I was very interested in the score board published in the November issue and worked out the following interesting percentages:

	VK2	3	4	5	6	7
Percentage of participants who sent in logs	41	36	45	65	89	99
Percentage of eligible logs	75	71	79	84	89	99
Percentage of licensed Hams taking part	16	13	16	16	25	33

## A.R.C.I. DX CONTEST

(Continued from Page 14)

6. The contest will extend from 0730 hrs. G.M.T. Saturday, December 11, 1949, and from 0730 hrs. G.M.T. Saturday, December 17 to 1830 hrs. G.M.T. Sunday, December 18, 1949.

For the purpose of this contest, stations located in India, Ceylon, Burma, and Pakistan will be considered as local stations and in one zone. The rest of the world will be divided into zones according to their country prefix list. An entrant not located in one of the prescribed prefix zones shall be considered as being in a prefix zone nearest to his station.

**Bands.**—Only 14 and 28 Mc. Amateur Bands will be used.

**Code Groups.**—All entrants will exchange a five figure (phone) or six figure (c.w.) groups with the contacted stations. The first two (for phone) and first three (for c.w.) figures will denote the signal report in RST and the last three, the serial number of the station, e.g., if you make a sixtieth phone contact your number will be 59080 (assuming that his signals are RS 89 at your end) and for the two hundredth c.w. contact your number will be 599290, etc. The exchange of these groups is essential for claiming points.

**10. License.**—Conditions laid down in the entrant's license must be observed.

**11. Band Monitoring.**—Special band monitoring stations under the auspices of the A.R.C.I. will be active during the contest; stations reported off frequency by these stations will be disallowed.

**12. Scoring.**—(a) Contacts with or reports from, ships or unlicensed stations will not count for points.

(b) Only contacts with stations located in other than the entrant's own zone will count for pointer points.

(c) Only one contact with a specific station may be made on each band during each week-end of the contest; stations contacted during the first week-end may be contacted again during the second week-end for points.

(d) Twenty points will be awarded for the first contact on a specific band (i.e., one station will be contacted on 14 Mc. and 28 Mc. bands and 49 points scored). Nineteen for the second contact, 18 for the third, and so on down to 1 point for the twentieth contact, in each zone, i.e., contacts with different zones will count separately for points so that the tenth contact in each zone can claim 20 points.

(e) A bonus of 350 points will be awarded to any entrant working all zones during the contest.

(f) A bonus of 1,000 points will be awarded to any entrant working all zones twice during the contest.

(g) A bonus of 50 points will be awarded to any entrant working all countries once during each week-end.

**13. Log.**—All entrants must forward a log sheet recording their contacts, as their entry form. The log should contain the following information:

(a) Heading showing (i) Name of entrant; (ii) QSL of entrant; (iii) Call sign; (iv) Details of Tx; (v) Details of Rx; (vi) Distance; (vii) Date; (viii) Declared designation as follows:—"I hereby certify that my station was operated strictly in accordance with the rule and spirit of this contest and I agree that the decision of the A.R.C.I. Contest Committee shall be final in all cases of disputes."

(b) Body giving the following information: (i) Date; (ii) Name of operator; (iii) Band; (iv) Call sign of the station contacted; (v) Five or six figure group sent; (vi) Five or six figure group received; (vii) Prefix zone; (viii) Points claimed.

## CLASSIFIED ADS.

Advertisements will be accepted under this heading from the trade, and/or others who are actively engaged in trading as a livelihood. Rate: 15/- per inch.

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## HAMADS

9d. per line, minimum 2/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line.

**FOR SALE.**—Bendix TA12 Transmitter, power supply and modulator. Converted for 10, 20, 40 and 80 metres. First class order. J. F. Anderson, Nullawarre, Victoria.

**FOR SALE.**—Converted 11 valve BC348Q Receiver, noise limiter, crystal filter. Two new 35Ts, one 25T, one converted BC454 (6-9 Mc.). W. Wells, 23 Waterloo St., Camberwell, Melbourne. Phone WF 7132.

**FOR SALE.**—Kingsley S9er and coils, 6, 10, 20 metres with 6AK5, £6/10/- Also 802, new, £2/5/- Sat. or Sun afternoon. W. Stevenson, 11a Maud St., Ormond, Vic.

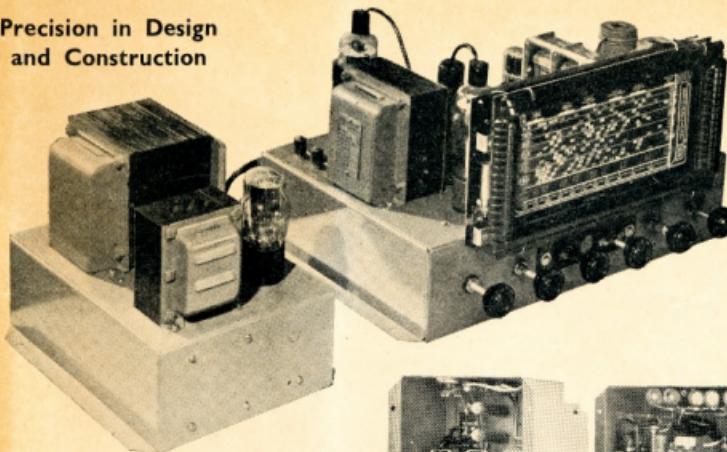
**WANTED.**—Plugs and cables for connecting Bendix RA10FA Receiver to remote control unit. K. Semmeler, Box 26, Murtoa, Victoria.

**WANTED.**—TR1143A Service Manual required urgently. Bennett, Lilydale, Victoria. Phone 98.

**WANTED.**—Will pay 10/- for May or October 1940 issue of "QST." G. Miller, 18 Ward St., South Melb., Vic.

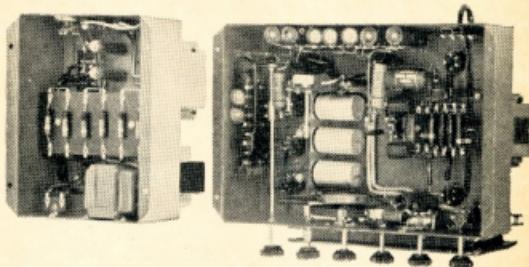
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Your problem will be "transformed" from a headache to a craftsman-built component when you consult Red Line Equipment Pty. Ltd.

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- ★ Low Tension Filament Supplies\*
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**5 BAND**

# Electrical BAND SPREADING TUNING UNIT

Aegis does it again! This time its multi-band tuning unit, specially developed for the Custom Built Console of the modern lounge! The unit is actually the entire "Front End" of a radio receiver, completely assembled and wired and accurately calibrated in megacycles and aligned. For those who are especially keen on listening to exciting Overseas Broadcasts direct from their origin, plus hundreds of Amateur Radio Operators talking to one another all over the world, small ships at sea, aircraft, police, and standard broadcast Interstate, we highly recommend the Aegis KC.5. Tuning on the Shortwave Bands is just as easy as tuning the Broadcast. Once a Station is logged on this beautifully clear dial, you can rest assured it will appear at the same position next time.

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Complete coverage of all popular bands obtained with **FIVE SWITCH POSITIONS**.  
1550-1620 Kc. (3.8-4.0 Mc.) 1545-175 Mc.  
(9.4-12.3 Mc.), (13.9-18.2 Mc.).  
Bands indicated on dial include 16, 19, 20,  
25, 31, 40, 49, 89 Metres, and Standard  
Broadcast.

Multi-colored, full vision, illuminated dial,  
12½ inch x 7½ inch.

Band change switch operates Automatic  
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Provision for "Magic Eye" tuning indicator.  
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Special Perspex dial pointer prevents in-  
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Some of the new and exclusive in Dial  
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A.W.A. three-gang Tuning Condenser floated  
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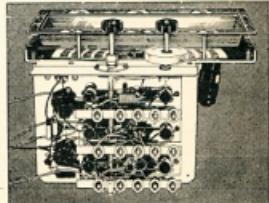
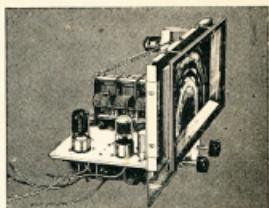
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Any number of valves and control circuits  
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